Ag in the Classroom Notes

United States Department of Agriculture

A bi-monthly newsletter for the Agriculture in the Classroom program. Sponsored by the U.S. Dept. of Agriculture to help students understand the important role of agriculture in the United States economy. For information, contact: Shirley Traxler, Director, Room 232-W, USDA, Washington, D.C. 20250. 202/447-5727

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Building a Better Plant

A biology student collects seeds from a small yellow-flowered plant and sows them. In just 5 weeks, plants that grew from the seed are producing seeds of their own — seeds ready to yield yet another generation.

For Brassica campestris, as this plant is called — or for many flowering plants — this is an impressively short life-cycle. The plant, a variant of wild mustard, can go through 3 generations in the time it takes a tomato plant to complete one, and its life-cycle is 5 times faster than its ancestor's.

This unique set of seed stocks, developed over a 10-year period by Professor Paul Williams, offers the potential for major improvements in the biology curriculum.

"Teaching and learning good scientific problem-solving strategies through observation, exploration and hypothesis-testing are very difficult without appropriate materials. The rapid-flowering mustards have the desired features to be used experimentally by students. Furthermore, they can illustrate all aspects of higher plant biology — growth, reproduction, genetics, evolution, ecology, physiology, biochemistry and molecular biology."

A professor of Plant Pathology at the University of Wisconsin-Madison, Williams spent several years breeding rapid-cycling versions of Brassica campestris and 6 related species. He believes his rapid-cycling plants can improve the teaching of biology for the same reasons they are improving the plant-breeder's tasks: their life-cycles are short, they have good seed production, and their small sizes require little space.

"The pollen appears two weeks after planting," says Williams, "and in two more weeks the seeds appear — a life-cycle short enough that students could raise a few generations before the end of the term.

Williams recently received a developmental grant from the University-Industry Research program (UIR) to establish a biology curriculum for high school and college students built around rapid-cycling plants. He intends to produce a package consisting of a hands-on growing kit, photos and videos of plant development, computer software, and instructional materials.

Among other things, the package will let students study genetic theories using interactive computer software, and grow, select, and breed plants to test their hypotheses.

Williams, who refers to himself humorously as "an old cabbage breeder," has developed a research tool useful to professions as new as genetic engineering, and as old as plant breeding and teaching.

For more information, see "Library."

Paul Williams instructs members of the Crucifer Genetics Cooperative on the care and feeding of rapid-cycling plants.

From the Director

Dear Readers,

What a pleasure it was for us at the United States Department of Agriculture to have such a good turnout for the Ag in the Classroom National Conference.

Curriculum materials, exhibits, photographs and other information were displayed on bulletin boards and walls.

Farmers and ranchers, teachers and government officials told about their achievements and plans. Everyone was eager to share what they had learned and to learn from the experiences of their colleagues in the Ag in the Classroom network.

Congratulations to all of you who have worked so hard these past five years.

A special thanks to Kathy Eastman, John Lewis, David Phillips, Marsha Purcell, Barbara Selover and Sally Katt for helping plan the conference.

Shirley Traxler

Library

For more information about the "fast plant" kit, contact:
Professor Paul H. Williams, Ph.D.
Department of Plant Pathology
1630 Linden Drive
University of Wisconsin
Madison, WI 53706

If you would like to order a copy of the Ag in the Classroom videotape, contact:

WRS Motion Picture and Video Laboratory
210 Semple Street
Pittsburgh, PA 15213

Attention: Robert Hiltwine

(412) 687-3700 or 1-800-345-6WRS

Cost: 3/4 inch $29.73
1/2 inch VHS or BETA $21.23

Spot

Alice Olsen, Bonnie Berryman and Senator Quentin Burdick dis the Ag in the Classroom program of their home state of North D

Barbara Moyer, Kansas, speaks about Kansas Ag in the Classro general session of the conference.

AIC Videotape Premier

The National Conference also featured a premier showing of the Ag in the Classroom videotape. The presentation featured AIC activities in many states.

The tape is 16 minutes long and can be obtained in 3/4" or 1/2" VHS, or BETA.

The AIC videotape will be listed in the National Audio-Visual Center catalogue which is distributed to schools throughout the country.

See the library section for further details on how to obtain a copy of the videotape.

Ag in the Classroom National Meeting

One-hundred and thirty-five education and agriculture representatives from 43 states, Canada and the Virgin Islands gathered in Washington for 3 days to exchange ideas and shape the direction of their efforts for next year, at the AIC national meeting, June 8-10.

Experts presented information in workshops on Curriculum, Proposal Development, Teacher Training, Volunteers, Careers, Evaluation and Goals, Public Relations, Ag Networks, and Ag in the Classroom for Beginners.

Guest speakers included Lois Bowman, Deputy Secretary for Elementary and Secondary Education, United States Department of Education; Ray Shepard, Editorial Director, School Division, Houghton Mifflin Company; Don Boileau, Director of Education Services, Speech Communications Association; David Chancey, Executive Director of the Charles Valentine Riley Memorial Foundation; and Patricia Buttitta, high school teacher, Isaquah, Washington.

Jean Ibendahl, Illinois and Dr. Orville Bentley, Assistant Secretary, Science and Education, USDA, at the national conference.

In a news release issued at the conference, Secretary of Agriculture Richard E. Lyng said, "Ag in the Classroom is reaching thousands of kids. They learn the simple fact that agricultural issues and events have been a major influence in human history — and that this impact continues in today's economy and society."

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Barbara Selover, National Livestock and Meat Board, at the Curriculum workshop.

Ralph Noble, Tuskegee University, Alabama, Chester Prince, Jr., California and Martha Borgeson, New York State Department of Agriculture & Markets, share ideas at the reception hosted by USDA officials.

New England and New York Form Consortium

The New England states and New York combined a regional meeting with the Ag in the Classroom national conference. This followed their first regional meeting, which was held in Portland, Maine, on April 30 and May 1.

These states have also decided to form a regional organization to explore ways of cooperation in areas such as funding and development of curriculum materials. The group is particularly interested in developing a project similar to the Colorado Reader which would be distributed to schools throughout the region.

David Nisely, AIC state contact from Connecticut, said, "It was a productive meeting. There are many areas where we can cooperate and we will be looking to the national AIC office to help with communication and coordination."

The Great Evergreen State Tractor Rally

Mary "drove" her tractor from the middle of Washington State to Puget Sound to see if blueberries grow there. They do. Then, after driving 100 miles south to find dairy cows, she learned that each cow drinks 38 gallons of water, and eats 56 pounds of feed a day.

The tractor ride lasted just 15 minutes, and she didn't have to shift gears once. She did, however, have to punch several keys on a computer keyboard.

"The Great Evergreen State Tractor Rally" is an educational tool and a game — a computer program for fourth through sixth graders that requires knowledge of the state's farm industry.

"Tractor Rally" contains tutorial, problem-solving, drill and practice exercises that require varying degrees of skill and knowledge.

The game is designed to present an increasing challenge to a student or class as they acquire more and more knowledge. While the simpler forms of the game can be played with no knowledge of Washington's agriculture, the higher levels of play can be entertaining contests of strategy to the most knowledgeable student.

After studying the state's farm commodities, students are ready to try to win the tractor rally. A green state appears on the computer screen, with a tractor in the middle of it. The Columbia River and the state boundaries are the only indicators of location.

Students tell the computer how many commodities — between 3 and 9 — they will be looking for. The computer then automatically chooses the commodities. The student who finds the crops in the fewest number of turns is the winner.

Students are responsible for finding all locations of any crop that grows in more than one area of the state. An advanced player can increase the game's level of difficulty by choosing a tractor with a smaller gas tank. Should they be unable to find each commodity in one try, they may run out of gas.

Washington agriculture is a $3 billion industry that has created 350,000 jobs in the state.

The Great Evergreen State Tractor Rally is a computer program that requires knowledge of the state's farm industry.

Duluth

There's nothing new about growing plants and using the food chain to teach science and social studies — even math and language arts. Duluth teachers have been doing it for a long time.

What is new is a program for offering reliable information to teachers and for developing lessons using contemporary agricultural concepts as a unifying core.

Funded through a demonstration grant from the Governor's Rural Development Council, "Introducing Agriculture in Economics" was offered through the Center for Economic Education and the department of Business and Economics at the University of Minnesota at Duluth (UMD). Twenty-four Duluth teachers were presented with a comprehensive overview of modern technologies, economic conditions, the importance of world markets, and policy issues affecting contemporary agriculture.

More than half of these teachers elected to follow up their classroom experience with weekend farm visits throughout the state. Using information from the UMD classes and experiences from the farm, teachers wrote up-to-the-minute lessons that are now being integrated into science and social studies curriculums.

Elsewhere, Duluth third-graders have been learning about their state's significant contribution to the national and world food supply. A field trip to the local farmer's market and use of the Minnesota agricultural map developed for the "Introducing Agriculture in Curriculum Program" helped students learn about the variety of products grown on Minnesota farms. The map is a colorful, appliqued canvas map with velcro-backed food symbols.

Elementary teachers have written a series of 4 lessons from the new Minnesota curriculums integrating a field trip to the port of Duluth into second grade social studies, geography and economics units.

Also, 18 teachers are writing forestry lessons that can be integrated into their existing science curriculum. Two teachers in each grade level K-6, 7 and 10 will develop, pilot, and revise forestry lesson plans in their classrooms. The lessons will be submitted for inclusion into the final integrated forestry curriculum.

Ag in Lancaster County

Students in Lancaster County Pennsylvania were treated recently to a month-long tour by the state's Ag in the Classroom program.

Students in each school district enjoyed presentations on various aspects of agriculture, including sheep, hogs, beef, chicken, dairy, fruits and vegetables. The programs, which often included live animals, displays of agricultural products, and farm implements, were provided by area farmers who volunteered their time to share their knowledge and enthusiasm for farming. Also, a number of the farmers brought along slides to share with the students.

These informative presentations generated many questions from the students, such as how much does a lamb weigh at birth? How much milk does a cow give when she's sick?

Students in the Manheim Central School District were treated to a presentation on beekeeping. Manheim beekeeper Daniel Fitzkee shared a slide show, and provided a display case of bees for students.

Hog producer Nancy Charles came to the classroom equipped with a "Porky Pig" puppet, who explained the workings of the hog industry from a pig's point-of-view. Ms. Charles brought a live piglet, and presented slides of her farm.

In addition to a slide show consisting of scenes from their farm, beef producers Marsha and Henry Barley brought a large tractor and other farm equipment for display.

Also, groups of high school FFA'ers (Future Farmers of America) visited the classrooms and spoke about their agricultural projects, informing younger students about the vo-ag programs available in high schools.

The timing of the project coincided with a social studies unit on farming. "It fit into the third grade curriculum just perfectly," said Helen Kocken, a third-grade teacher at Ann Lewtort Elementary.

William Wood, a principal for 2 elementary schools in Lancaster County, said that teachers and administrators have responded enthusiastically to the program. Wood believes agricultural programs like Ag in the Classroom are especially important in areas like Lancaster County, where farming is prevalent.

Dairy farmer John Barley added that farmers are willing to devote their time to such a program, because they believe it is something that will make a difference in how people perceive agriculture and farmers.

"People think milk comes from a shelf in the supermarket," he said, noting that it is this kind of misconception that farmers hope to eradicate through Ag in the Classroom.

Their message has already influenced the career aspirations of one young student, who, upon seeing the impressive size of an international tractor, remarked, "I wanted to be a truck driver, but now I'm going to be a farmer!"

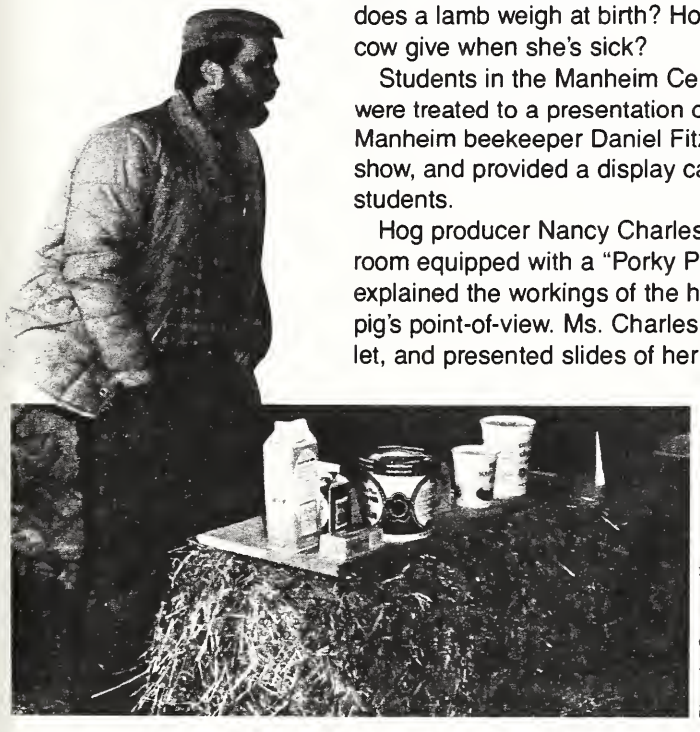

Photo by Suzanne Keene

Dairy farmer Ray Reitz presents students with the wide variety of products that come from dairy cows.

Photo by Suzanne Keene

Two Lancaster students make a new friend.